Federal Energy Management Program

FEMP Designated Product:
Clothes Washers

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Federal agencies are required by the Energy Policy Act of 2005 (P.L. 109-58) and Federal Acquisition Regulations (FAR) Subpart 23.2 to specify and buy ENERGY STAR®-qualified products or, in categories with no ENERGY STAR label, FEMP-designated products which are among the highest 25 percent of equivalent products for energy efficiency.

Performance Requirement for Federal Purchases

Washer Capacity	Modified Energy Factor[a]
1.6 to 3.5 cu. ft.	1.42 or more

a) Modified Energy Factor (MEF) is the number of cubic feet of clothes washed and dried per kilowatt hour (kWh) of electricity used. MEF is calculated by dividing the tub capacity by the total energy (clothes washer, water heater and dryer) used per wash load (10 CFR 430, sub-part B, Appendix J).

Buying Energy-Efficient Clothes Washers

When buying residential and family-size commercial clothes washers use the Modified Energy Factor (MEF) instead of the annual energy consumption (kWh/year) shown on the yellow EnergyGuide label. While both measures include the energy used by the washer and water heater, MEF adds that used by the dryer. Since some clothes washers are more effective at spinning moisture from clothing, resulting in less time and energy needed for drying, MEF is a more accurate indicator of performance. Specify or select products that are ENERGY STAR-qualified (see *For More Information*), all of which meet the MEF shown in the *Performance Requirement* table.

Family-sized commercial clothes washers are similar to residential clothes washers in size, performance, features, and connections. The commercial products have sturdier frames and mechanical components, a modified control panel with fewer control settings, and feature a coin box, debit card reader or other revenue collecting device.

Performance requirements apply to all forms of procurements, including: guide and project specifications; construction, renovation, repair, maintenance and energy service contracts, lease agreements and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Model language to assist agencies with incorporating these performance requirements into their procurement documents is available at http://www.eere.energy.gov/femp/procurement/eep_modellang.cfm.

The federal supply source for clothes washers is the General Services Administration (GSA), which sells them through its Multiple Awards Schedules program and on-line shopping network, *GSA Advantage!* Note that not all clothes washers sold by GSA are ENERGY STAR-qualified and some that do qualify may not be indicated as such. When buying clothes washers through this source, check the make and model number against the list of qualified products on the ENERGY STAR web site to assure they meet this *Specification*.

User Tips

A substantial amount of the energy used for clothes washing is for heating the water. Selecting cold water wash cycles will save energy; appropriate load-size settings will save both water and energy. ENERGY STAR-qualified clothes washers use less water than standard models while cleaning just as well.

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In areas with limited water supplies, consider buying products with low water factors (WF), a performance metric for comparing clothes washer water consumption independent of capacity. WF is the total water used per cycle divided by the machine's capacity (in cu. ft.). A lower value indicates a more efficient clothes washer. While ENERGY STAR does not currently include WF in its performance criteria, the Department of Energy (DOE) is proposing to add it in January 2007. The Consortium for Energy Efficiency (see *For More Information*) includes WF in its list of qualifying products.

Cost-Effectiveness Example

Performance	Base Model[a]	Required	Best Available[b]
Modified Energy Factor	1.04	1.42	2.34
Annual Electricity Use[c]	1,250 kWh	917 kWh	556 kWh
Annual Energy Cost	$75	$55	$33
Lifetime Energy Cost	$720	$530	$320
Water Factor (gallons/cu. ft./cycle)	11.1	10.5	3.6
Annual Water Use	14,400 gallons	13,700 gallons	4,750 gallons
Annual Water & Sewer Cost	$58	$55	$19
Lifetime Water & Sewer Cost	$610	$580	$200
Lifetime Utilities Cost[d]	$1,330	$1,110	$520
Lifetime Utilities Cost Savings	**-**	**$220**	**$810**

a) The efficiency (MEF) of the Base Model is the minimum allowed by current US DOE appliance standards.

b) More efficient products may have been introduced to the market since this specification was published. Information on the best available model was obtained from the ENERGY STAR residential clothes washers products list (see *For More Information*).

c) Includes energy for washing, drying and water heating. This value is not the same as that shown on the EnergyGuide label.

d) Lifetime utilities cost is the sum of the discounted value of the annual electricity, water, and sewer costs based on average usage and an assumed clothes washer life of 13 years. Future energy price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2005 to March, 2006). Future water and sewer costs are conservatively assumed to increase only at the rate of inflation.

Cost-Effectiveness Assumptions

In this example, annual energy use is calculated with the standard DOE test procedure for a residential clothes washer with a 3.3 cubic foot capacity cleaning 392 loads per year. The assumed electricity price is 6¢ per kWh, the average at federal facilities in the US. The assumed water and sewer cost is $4.00 per 1,000 gallons.

Using the Cost-Effectiveness Table

In the example shown above, when using electric water heating and drying, the *Required* clothes washer is cost-effective if its purchase price is no more than $220 above the price of the *Base Model*. The *Best Available* model is cost-effective if its price is no more than $810 above the *Base Model*. These savings will be less if natural gas is used for water heating and/or drying.

What if my Utility Prices or Usage are different?

ENERGY STAR has an Excel-based cost calculator for clothes washers on its web site. Go to http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers, and click on Savings Calculator - Clothes Washers. Select the water heater type from the pull-down menu then input the number of loads per week plus the rates for electricty, natural gas and water. The output section will automatically display results that better reflect your conditions.

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For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

EPA/DOE ENERGY STAR has lists of qualified residential and family-size commercial clothes washers at:
(888) 782-7937
www.energystar.gov/products/

American Council for and Energy Efficient Economy (ACEEE) publishes the *Consumer's Guide to Home Energy Savings* which contains a chapter on laundry and list of energy-efficient clothes washers. This guide is available from ACEEE at:
(202) 429-0063
www.aceee.org/

The Consortium for Energy Efficiency (CEE) provides information on utility programs promoting energy-efficient clothes washers.
(617) 589-3949
www.cee1.org/

Federal Trade Commission lists the annual energy use of clothes washers and other appliance data on its web site at:
www.ftc.gov/energy/

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy-efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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